

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2004/021714

Box No. I Nucleotide and/or amino acid sequence(s) (Continuation of item 1.b of the first sheet)

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, the international search was carried out on the basis of:

a. type of material

☒

a sequence listing

☐

table(s) related to the sequence listing

b. format of material

☒

in written format

☒

in computer readable form

c. time of filing/furnishing

☒

contained in the international application as filed

☒

filed together with the international application in computer readable form

☐

furnished subsequently to this Authority for the purpose of search

2. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

3. Additional comments:

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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C07K14/315

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHEDMinimum documentation searched (classification system followed by classification symbols)
IPC 7 C07K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, BIOSIS, MEDLINE, WPI Data, Sequence Search

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GUBBA SIDDESWAR ET AL: "Expression and characterization of group A Streptococcus extracellular cysteine protease recombinant mutant proteins and documentation of seroconversion during human invasive disease episodes" INFECTION AND IMMUNITY, vol. 66, no. 2, February 1998 (1998-02), pages 765-770, XP002304245 ISSN: 0019-9567 page 765 - page 167 ----- -/--	1-71



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents:

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *&* document member of the same patent family

Date of the actual completion of the international search

8 November 2004

Date of mailing of the international search report

19/11/2004

Name and mailing address of the ISA

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Authorized officer

Young, C

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DATABASE EMBL Streptococcus pyogenes SpeB 1 June 2001 (2001-06-01), WATANABE Y: "SpeB exotoxin" XP002304250 retrieved from EBI Database accession no. Q9AJD2 abstract	35-44, 50-69,71
X	MUSSEY JAMES M ET AL: "Substitution of cysteine 192 in a highly conserved Streptococcus pyogenes extracellular cysteine protease (interleukin 1-beta convertase) alters proteolytic activity and ablates zymogen processing" INFECTION AND IMMUNITY, vol. 64, no. 6, 1996, pages 1913-1917, XP002304246 ISSN: 0019-9567 the whole document	1-71
X	KAGAWA TODD F ET AL: "Crystal structure of the zymogen form of the group A Streptococcus virulence factor SpeB: An integrin-binding cysteine protease" PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF USA, NATIONAL ACADEMY OF SCIENCE. WASHINGTON, US, vol. 97, no. 5, 29 February 2000 (2000-02-29), pages 2235-2240, XP002149908 ISSN: 0027-8424 the whole document	1-71
X	FAGIN URSULA ET AL: "Exclusion of bioactive contaminations in Streptococcus pyogenes erythrogenic toxin A preparations by recombinant expression in Escherichia coli" INFECTION AND IMMUNITY, vol. 65, no. 11, 1997, pages 4725-4733, XP002304247 ISSN: 0019-9567 the whole document	1-71
X	KAPUR VIVEK ET AL: "A conserved Streptococcus pyogenes extracellular cysteine protease cleaves human fibronectin and degrades vitronectin" MICROBIAL PATHOGENESIS, vol. 15, no. 5, 1993, pages 327-346, XP002304248 ISSN: 0882-4010 page 340 - page 341	1-71

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 98/49311 A (NOVO ENZYME CORP DE ; BORGFORDE THOR (CA)) 5 November 1998 (1998-11-05) the whole document -----	1-71
A	KING JONATHAN ET AL: "Thermolabile folding intermediates: Inclusion body precursors and chaperonin substrates" FASEB JOURNAL, vol. 10, no. 1, 1996, pages 57-66, XP002304249 ISSN: 0892-6638 the whole document -----	1-71
A	TAN S: "A MODULAR POLYCISTRONIC EXPRESSION SYSTEM FOR OVEREXPRESSING PROTEIN COMPLEXES IN ESCHERICHIA COLI" PROTEIN EXPRESSION AND PURIFICATION, ACADEMIC PRESS, US, vol. 21, 2001, pages 224-234, XP001087869 ISSN: 1046-5928 the whole document -----	1-71

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Information on patent family members

International Application No

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Patent document cited in search report		Publication date		Patent family member(s)		Publication date
WO 9849311	A	05-11-1998	AU	7023798 A		24-11-1998
			CA	2288943 A1		05-11-1998
			WO	9849311 A2		05-11-1998
			EP	0977862 A2		09-02-2000
			JP	2001523961 T		27-11-2001
			US	2004009551 A1		15-01-2004
			US	6593132 B1		15-07-2003
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